CSFPI-V3

Earth Fault Passage Indicator

Catalog

C&S electric

PMD Division

CONTENT

1) Introduction

CSFPI, Fault Passage Indicator is designed to detect and indicate Earth fault on a cable system, in RMU networks with one input / open ring arrangement. The product is powered by the Internal Battery only. The unit will indicate a fault condition when current is detected above set trip current settings. Fault current is sensed by cable mounted sensor, which gives signal to indication unit. Sensor must be mounted on screened cable and can be retrofitted on the cable.
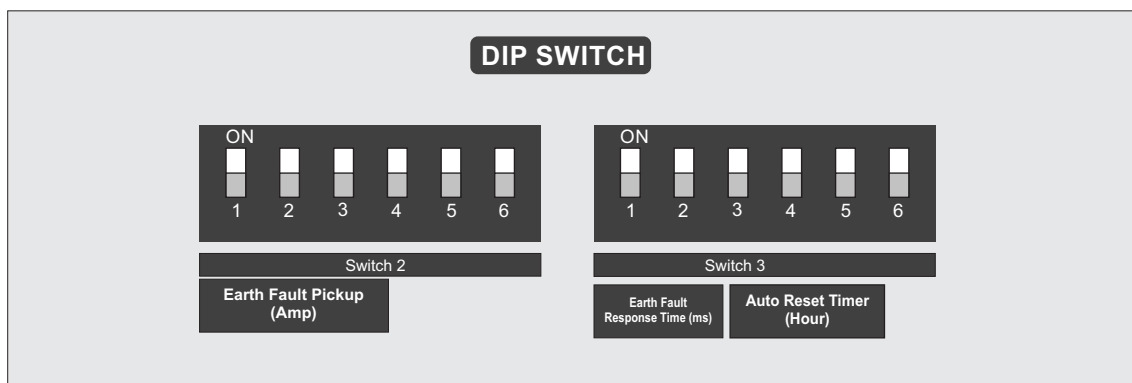
2) Features

- Programmable Earth fault pickup level (wide range) *
- Programmable response delay for Earth-fault *
- Indication of earth-fault by blinking of Earth-fault LED
- Up-to Two potential free contacts to indicate earth-fault. (remote indication for SCADA)
- Various Reset option for Fault Reset (Please refer specification table on page 7)

3) Functional Description

If the Earth current exceeds programmed set current for programmed response time the fault will be indicated by red flashing LED and relay contact will be activated. Reset occurs automatically by preset time passage or by a external potential free input or by recovering of Voltage (Not an Aux. Supply) or by manually via push button. A Functional Test can also be carried out on field by pressing for more than 3 Sec and Battery Test by pressing the Push button for more than 6 Sec.
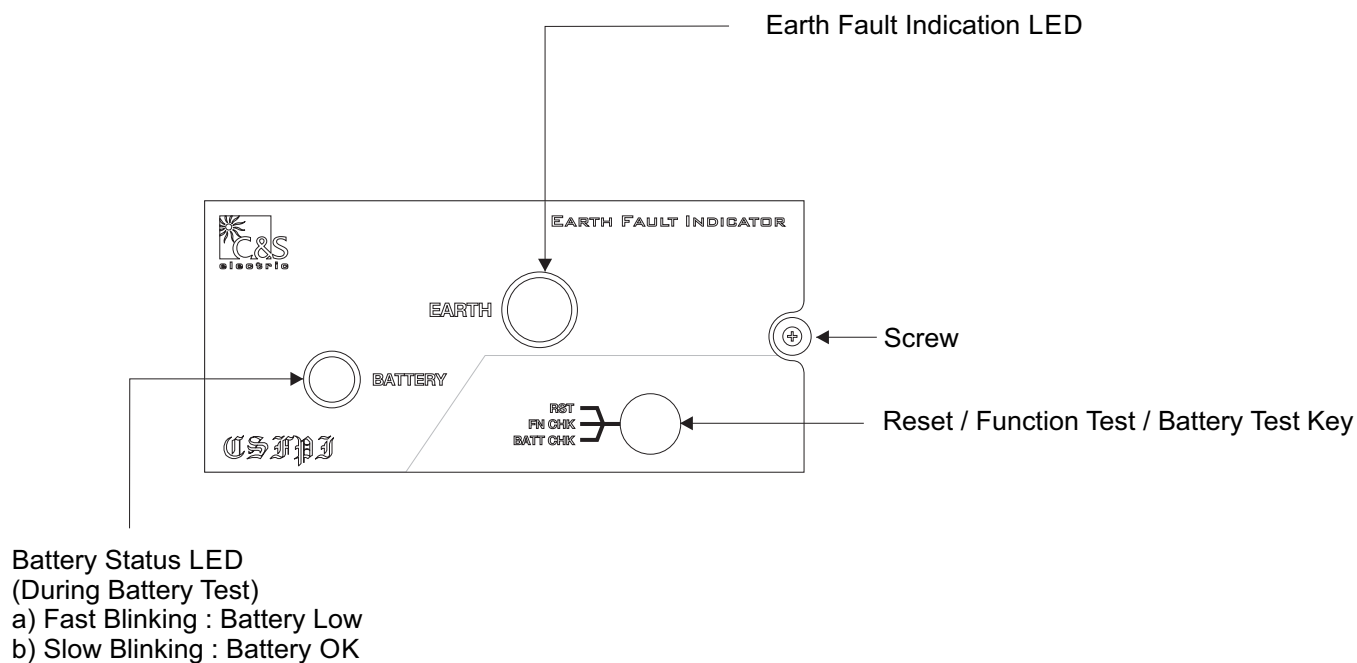
The sensor for earth fault detection is a summation type current sensor and it is dimensioned in such a way that if can be mounted around all three phases of the network.

Programmable parameters can be set through DIP switches which are accessible by opening the Front Cover of the CSFPI indication unit. Exit (Disable) option is available for fault detection.

DIP SWITCH

| ON | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 |

Switch 2

Earth Fault Pickup (Amp)

| ON | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 |

Switch 3

Earth Fault Response Time (ms) | **Auto Reset Timer (Hour)**

(Refer Table on Page - 7 for Setting Details)

* Model Dependent

4) Front Interface

Earth Fault Indication LED

Screw

Reset / Function Test / Battery Test Key

Battery Status LED
(During Battery Test)
a) Fast Blinking : Battery Low
b) Slow Blinking : Battery OK

Note: open the Front plate by removing the front screw to access the DIP switch setting.

2 DIP Switches
for Programmed
Parameter settings
(Accessible only after
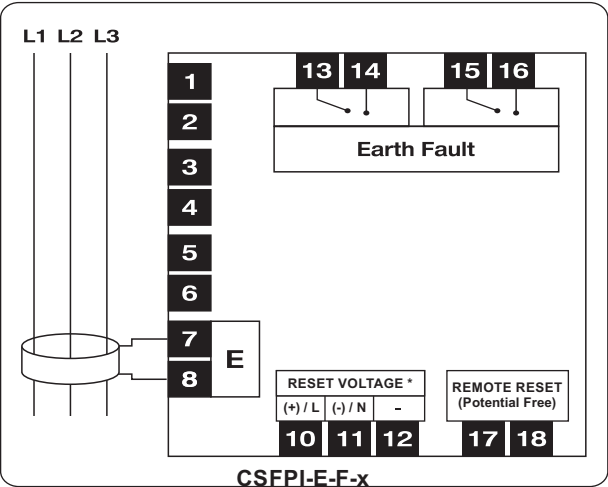opening the Front Plate)
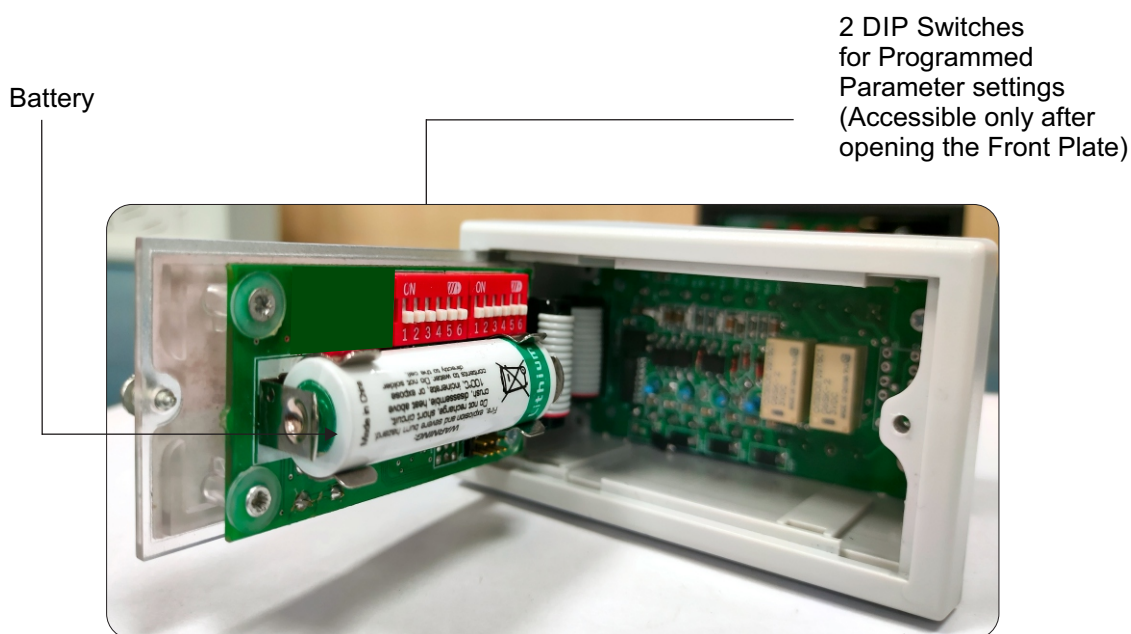
Battery

5) Connection Diagram
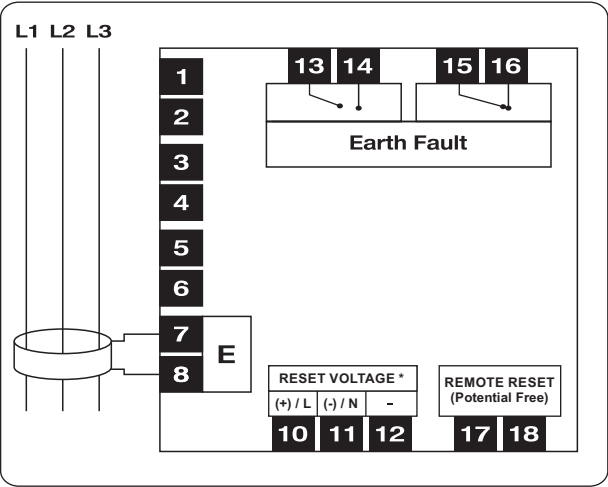
CSFPI-E-A-x
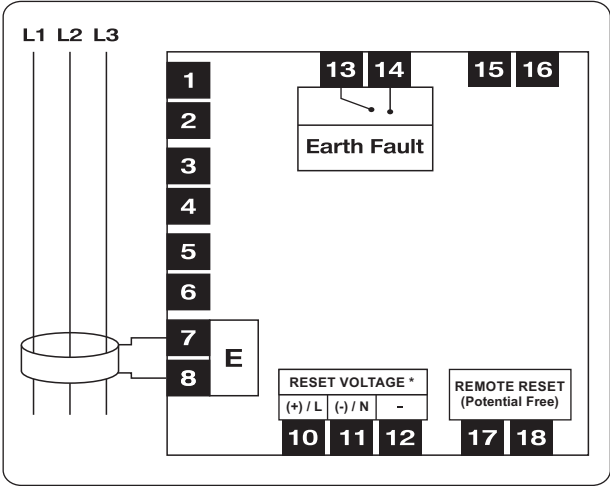
CSFPI-E-E-x

CSFPI-E-F-x

* Model Dependent

⚠ **CAUTION : Remote Reset Signal requires 200msec pulse. Continuous signal can reduce battery life**.

6) General Data

Subject	Value
Earth-Fault Trip Current (Phase to Ground)	: Adjustable: : For Range : Refer Table on page 7 ($\pm$15%) **
Earth Fault Response Time	: Adjustable : For Range : Refer Table on page 7 ($\pm$100msec) **
Indication Unit	: Suitable for panel installation
Indication of a) Earth-Fault b) Battery	: a) One Red LED for Earth-Fault : b) One Yellow LED for Battery Test
Reset of the Indicator	: a) Manual by push-button : b) Automatic Reset by Time : Refer Table on page 7 : c) Self-acting after recovering of 230V AC/DC (Range: 22V - 260V AC/DC) : d) Remote Reset (Potential Free Input) - **Remote Reset Signal requires 200msec pulse. Continuous signal can reduce battery life**.
On Site Function Test	: By Push-Button
Dimensions	: Refer Page No. 8 for dimension details
Protection Class	: Indication Unit - IP50, Sensor - IP67
Type Test	: According to IEEE 495-2007
Operation Temperature Range	: -25°C to +70°C
Power Supply	: Lithium Battery 3.6V / 2.7 Ah **(Mandatory)**
SCADA Contact "	: Max. 2 Latch Contacts : Nominal Switching Capacity:2A 30V DC, 0.25A 240V AC (Resistive Load) : Max. Switching Power:60W, 60VA (Resistive Load) : Max. Switching Voltage:220V DC, 250V AC
Earth-Fault Sensor (CT)	: One Earth-Fault Sensor Type CS-x-ES-x-x for a Three-Core Cable : Diameter : various option available (Based on ordering information)
Connection & Mounting	: Screwed Terminal Connector at the rear side of the unit for connection. The unit is Panel mount.

** Accuracy claimed at 50Hz

* Model Dependent

7) Earth Fault Sensor Type (CS-x-ES-x-x)

Sensor dia (d)	Cable Dia
D1	80-100 mm (Round)
D3	120-140 mm (Round)
D4	180-200 mm (Round)
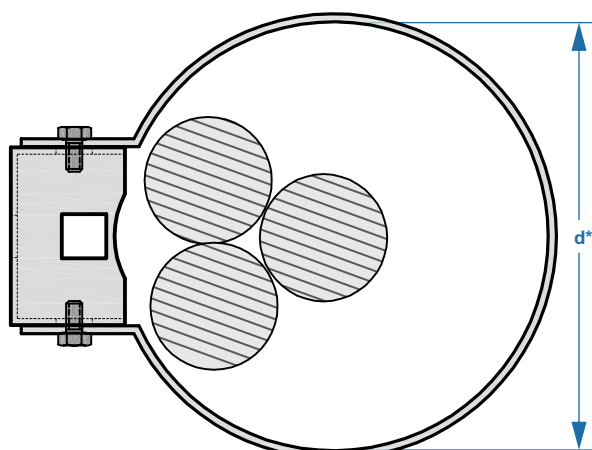
Sensor Diameter (d *) & Sensor Cable (2 Wire, 6mm dia, FR Grade type), Wire Length from Sensor to indicator is 3.0 Meter

8) Specification Table

Description	Standard	C3	C6
Earth-Fault Current Range	10-100A	100-300A	20-200A
Earth-Fault Trip Current Setting (A)	10/20/30/40/60/80/100	100/130/160/180/200/240/300	20/40/60/80/100/150/200
Earth Fault Response Time Setting (ms)	40/60/80/160	30/60/80/100	40/80/200/300
Indication of LEDs for			
Earth-Fault - 1 RED LED	✓	✓	✓
Battery - 1 YELLOW LED	✓	✓	✓
Reset Option			
Manual by push-button	✓	✓	✓
Remote Reset (Potential Free Input)	✓	✓	✓
Automatic Reset by time (Hr) ± 5%	1/2/4/8	0.5/1/2/3/4	2/4/8/16
Automatic Reset after recovery of voltage	230V AC/DC	230V AC/DC	230V AC/DC
On Site Function Test By push button	✓	✓	✓
Power Source			
Li Battery 3.6V / 2.7 Ah (Mandatory)	✓	✓	✓
SENSOR INFORMATION			
Earth-Fault Sensor - 01 no.	✓	✓	✓
Wire Length from Sensor to Indicator (Meter)	3	3	3
Earth Sensor model	Refer Ordering Information for Sensor Selection		

9) Dimension Details

All the dimensions are in mm (Tol.: ±1.0mm)

Overall Dimension	:	WxHxD = 96.8x50.3x61.3 mm
Panel cut out Dimension		
Width	:	91.0 mm
Height	:	46.0 mm
Installation Depth	:	52.0 mm

Recommended panel sheet thickness "1mm to 1.6mm"

FRONT VIEW OF EARTH FAULT INDICATOR

50.3 mm

96.8 mm

SIDE VIEW

43.5 mm

51.0 mm

BACK VIEW

96.8 mm

TOP VIEW

89.5 mm

51.0 mm

10.3
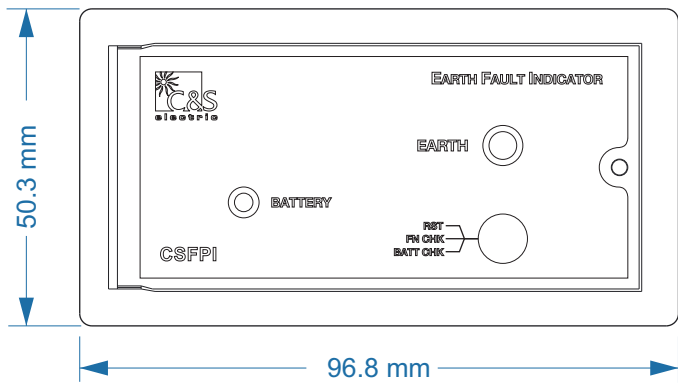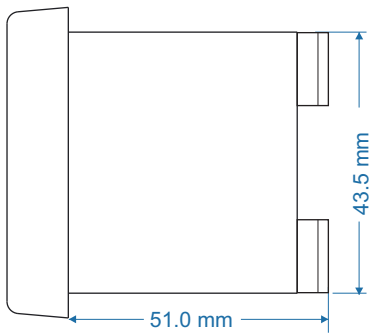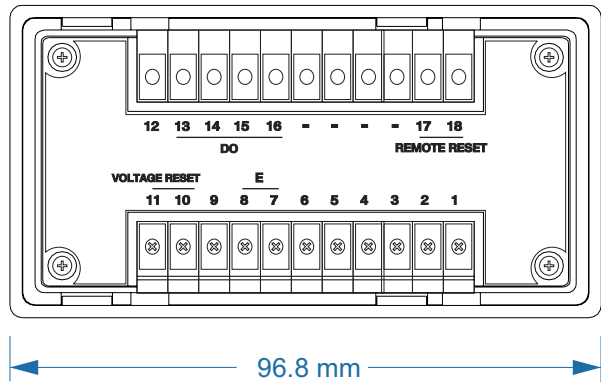
10) Ordering Information (Indication Unit)

CSFPI - E - X - H - X - X - V3

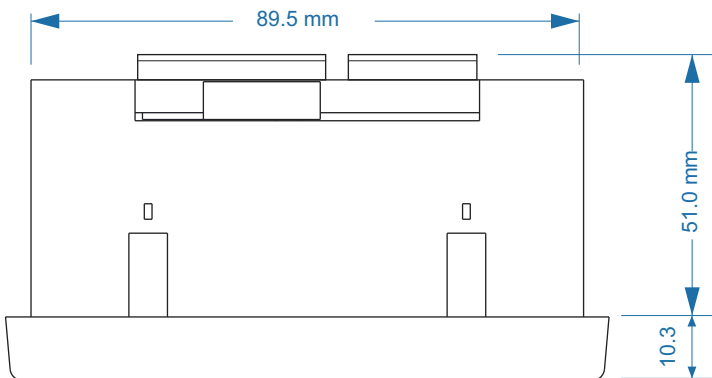| A : Earth Fault Indicator with 1 NO & 1 NC Digital Output |
|---|
| E : Earth Fault Indicator with 1 N/O Digital Output |
| F : Earth Fault Indicator with 2 N/O Digital Output |

Model variants
- : Standard
Cx : C3 / C6

Earth Sensor
E1 : Earth Sensor Dia D1 (80-100mm) with Teflon cable of 3 Meter
E3 : Earth Sensor Dia D3 (120-140 mm) with Teflon cable of 3 Meter
E1C : Earth Sensor Dia D1 (80-100mm) with PVC cable of 3 Meter
E3C : Earth Sensor Dia D3 (120-140mm) with PVC cable of 3 Meter
E4C : Earth Sensor Dia D4 (180-200 mm) with PVC cable of 3 Meter
E1S : Earth Sensor Dia D1 (80-100mm) with Teflon having shielded cable of 3 Meter
E3S : Earth Sensor Dia D3 (120-140 mm) with Teflon having shielded cable of 3 Meter
Refer Sensor details

All the models have internally Battery for Power.

Revision History

S.No.	Rev.No.	Details	Date
01	01	Include CAUTION remarks for Remote Reset Signal on conn. diagram (page 5) & General data (page 6)	14..01.22
02	02	Include **Front Bezel Type** option in ordering information	08.09.22
03	03	Include **Recommended panel sheet thickness "1mm to 1.6mm"** in dimension details section of the catalog	19.05.23
04	04	Change in ordering information (corrected earth sensors variants) from page 9	19.09.24
05	05	Corrected bezel information. Removed bezel type selection from ordering information	06.11.24
06	06	Earth sensor E3C details, included in ordering information on page 9	03.01.25

NOTE
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